

What Is Claimed Is:

1. A method for fabricating a semiconductor device comprising:
depositing an isolation oxide layer and a first nitride layer on a semiconductor substrate;
forming a trench in an active region by etching the first nitride layer and a portion of the semiconductor substrate;
performing an epitaxial growth on the active region and depositing a first oxide layer on the epitaxial growth;
using a source/drain mask, etching portions of the first oxide layer to a predetermined thickness where a source and a drain are to be formed;
performing an epitaxial growth on the portions where the source and the drain are to be formed to thereby form the source and the drain;
depositing a second nitride layer on the source and the drain;
using a gate mask, etching a portion of the first oxide layer where a gate is to be formed;
depositing and planarizing a third nitride layer on the source, the drain, and the exposed active region to thereby form a nitride layer to control a length of the gate;
sequentially depositing a gate isolation layer and a gate electrode on the active region; and
depositing a dielectric layer forming plugs on the source, drain, and gate.

2. A method as defined in claim 1, wherein depositing the isolation oxide layer comprises depositing a shallow trench isolation (STI).
3. A method as defined in claim 1, wherein forming the trench in the active region by etching the first nitride layer and the portion of the semiconductor substrate comprises etching the first oxide layer to a thickness approximately equal to a thickness of the gate electrode.
4. A method as defined in claim 1, wherein etching the portions of the first oxide layer to the predetermined thickness where the source and the drain are to be formed comprises removing the portions of first oxide layer where the source and the drain are to be formed with a diluted HF solution.
5. A method as defined in claim 1, wherein the first oxide layer is etched by an anisotropic dry etching process.
6. A method as defined in claim 1, wherein depositing the second nitride layer on the source and the drain comprises depositing the second nitride layer to a thickness not less than the thickness of the first oxide layer.
7. A method as defined in claim 1, wherein the source and the drain are formed by a BSG or a PSG method.